NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

ACCESS ROAD

(ft)
CODE 560

DEFINITION

A travel way constructed as part of a conservation plan.

PURPOSE

To provide a fixed route for travel for moving livestock, produce, equipment, and supplies; and to provide access for proper operation, maintenance, and management of conservation enterprises while controlling runoff to prevent erosion and maintain or improve water quality.

CONDITIONS WHERE PRACTICE APPLIES

Where access is needed from a private or public road or highway to a conservation enterprise or measure, or where travel ways arc needed in a planned land use area.

CRITERIA

Access roads shall be designed to serve the enterprise or planned use with the expected vehicular or equipment traffic. The type of vehicle or equipment, speed, loads, climatic, and other conditions under which vehicles and equipment are expected to operate need to be considered.

Visual resources and environmental values shall be considered in planning and designing the road system.

Access roads range from seldom used trails to all-weather roads heavily used by the public and built to very high standards. Some trails facilitate control of forest fires are used for logging, serve as access to remote areas for recreation, or are used for maintenance of facilities.

Where general public use is anticipated, roads should be designed to meet applicable federal, state, or local criteria.

Sound engineering practices shall be followed to insure that the road meets the requirements of its intended use and that maintenance requirements are in line with operating budgets.

Location. Roads shall be located to serve the purpose intended, to facilitate the control and disposal of water, to control or reduce erosion, to make the best use of topographic features, and to include scenic vistas where possible. The roads should generally follow natural contours and slopes to minimize disturbance of drainage patterns. Roads should be located where they can be maintained and so water management problems are not created. To reduce pollution, roads should not be located too near watercourses.

Alignment. The gradient and vertical and horizontal alignment shall be adapted to the intensity of use, mode of travel, and the level of development. Grades normally should not exceed 10 percent except for short lengths, but maximum grades of 20 percent or more may be used if necessary for special uses with provisions for controlling runoff and erosion.

Width. The minimum width of the roadbed is 14 ft for one-way traffic and 20 ft for two-way traffic. Single-lane logging or special-purpose roads have a minimum width of 10 ft, with greater widths at curves and turnouts. The two-way traffic width shall be increased approximately 4 ft for trailer traffic.

The minimum tread width is 10 ft for one-way traffic and 16 ft for two-way traffic. The tread width for two-way traffic shall be increased approximately 4 ft for trailer traffic.

The minimum shoulder width is 2 ft on each side of the tread width.

Where turnouts are used, road width shall be increased to a minimum of 20 ft for a distance of 30 ft.

Side slopes. All cuts and fills shall have side slopes designed to be stable for the particular site conditions. Areas with geological conditions and soils subject to slides shall be avoided or treated

to prevent slides.

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Drainage. The type of drainage structure used will depend on the type of enterprise and runoff conditions. Culverts, bridges, or grade dips for water management shall be provided at all natural drainage ways. The capacity and design shall be consistent with sound engineering principles and shall be adequate for the class of vehicle, type of road, development, or use.

Culverts, broad based dips and rolling dips shall be used on in sloped roads to provide cross drainage to prevent accumulations and concentrations of surface runoff and subsequent erosion of road side ditches. These should be located at wing ditch locations when practical. In sloped roads are constructed perpendicular to the natural ground slope with the road surface graded to drain opposite the natural slope.

Culverts should be used on roads of greater relative importance and higher traffic volume. Culverts used for cross drainage of insloped roads shall be designed in accordance with Practice Code 587, Structure for Water Control, and spaced at the same distances as for dips shown below. The culvert material shall be suitable for the design loading and use of the road.

Rolling dips and broad based dips are used for cross drainage of in sloped roads with relatively low traffic volumes. Dips should not be used for cross drainage of springs, seeps, or intermittent or perennial streams. The dips are depressions in tile road surface with a reverse grade which slopes across the road surface. The slope of the bottom of the dip shall be 1 to 3 percent. and should be parnbolic in shape to facilitate vehicle movement

Broad based dips are for use on roads with slopes of 8 percent and less. These dips are evacuated across the roadbed and convert the roadbed from one continuous plane into three planes. One plane is the reverse grade which is 15 to 20 feet in length with a 3 percent grade toward the uphill road portion. The second plane is 50 to 70 feet in length which steepens the roadbed grade from the bottom of the dip to the original roadbed. The third plane is the original roadbed grade between the dips.

Rolling dips are for use on roads with slopes of 8 to 15 percent; however they may be used on roads with slopes less than 8 percent as long as the slower traffic flow is considered. These dips consist of a cross channel excavated in the roadbed with the excavated material used to build a mound for the reverse grade. The reverse grade of the rolling dip should be 10 to 15 feet in length with a grade of 3 to 8 percent Rolling dips will require slower traffic speeds than broad based dips.

Dips shall be spaced in accordance with the following equation:

$$\text{spacing (feet)} = \frac{400}{\text{slope in percent}} + 100$$

Roadside ditches shall be adequate to provide surface drainage for the roadway and deep enough, as needed to serve as outlets for subsurface drainage. Channels shall be designed to be on stable grades or protected with structures or linings for stability.

Wing ditches which are water turnouts, or diversion ditches which remove runoff water from a roadside ditch and safely disperses it shall be used to prevent erosion of the roadside ditches.

Wing ditches shall intersect tile ditch line at the same depth and have a maximum grade of 1 percent on easily erodible soils, and 2 percent on erosion resistant soils. The wing ditch should intersect the road drainage at an angle of 30 to 45 degrees to the roadbed and then follow the natural contour and stay within the design grades.

The recommended spacing for wing ditches is as follows:

Road Grade (percent	Wing Ditch Spacing (feet)
2 to 5	200
5 to 10	100
10 or greater	75

Wing ditches should not outlet directly into streams, gullies, or channels. Wing ditches should utilize a level spreader at tile outlet which

distributes the water at non erosive velocities onto undisturbed vegetation.

Where wing ditches cannot practically installed to turn water out of road ditches, (i.e. limited right of way width) the road ditch shall be designed to be stable for the anticipated flow rates and velocities. This may require the ditch to be lined with a paved drain, rock rip rap, or other appropriate means in accordance with Practice Code 468, Lined Waterway or Outlet or other applicable standards.

Roadside channels, cross drains, and drainage structure inlets and outlets shall be designed to be stable without protection. If protection is needed, rip rap or other similar materials shall be used.

Surfacing. Access roads shall be given a wearing course or surface treatment if required by traffic needs, climate, erosion control, or dust control. The type of treatment depends on local conditions, available materials, and the existing road base. If these factors or the volume of traffic is not a problem, no special treatment of the surface is required.

Unsurfaced roads may require controlled access to prevent damage or hazardous conditions during adverse climatic conditions. Toxic and acid-forming materials shall not be used on roads. This should not be construed to prohibit use of chemicals for dust control and snow and ice removal.

Traffic safety. Passing lanes, turnouts, guardrails, signs, and other facilities as needed for safe traffic flow shall be provided. Traffic safety shall be a prime factor in selecting the angle and grade of the intersection with public highways. Preferably, the angles shall be not less than 85 degrees. The public highway shall be entered either at the top of a hill or far enough from the top or a curve to provide visibility and a safe sight distance. The clear sight distance to each side shall not be less than 300 feet, if site conditions permit

Erosion control. If soil and climatic conditions are favorable, road banks and disturbed areas shall be vegetated as soon as possible and skid trails, landings, logging, and similar roads shall be vegetated after harvesting or seasonal use is completed, in accordance with Critical Area Treatment. Practice Code 342. If the use of vegetation is precluded and protection against erosion is needed, protection shall be provided by non-vegetative materials, such as gravel or other mulches.

General. Dead end roads shall be provided with a turnaround. In some areas turnarounds may also be desirable for stream. lake, recreation. or other access purposes.

Parking space as needed shall be provided to keep vehicles off the road or from being parked in undesirable locations.

CONSIDERATIONS

Watercourses and water quality shall be protected during and after construction by erosion-control facilities and maintenance. Filter Strips, Practice Code 392, Water and Sediment Control Basins, Practice Code 638, and other conservation practices shall be used and maintained as needed.

Effects on wetlands and water-related wildlife habitats that would be associated with the practice shall be considered.

Visual quality of the land and water resources must be considered in the design and construction of tile practice.

PLANS AND SPECIFICATIONS

Plans and specifications for constructing access roads shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose.

OPERATION AND MAINTENANCE

Periodic maintenance will be required on all types of access roads. Inspections should be completed regularly to ascertain the maintenance needs of the access road and associated measures. Depending upon the surface material, grading to remove ruts and the addition of surface material will be required periodically.

All drainage measures will require removal of accumulations of sediment periodically. The outlets of all drainage measures should be inspected to ensure they are not eroding and are stable.